

**Work Order ID 69801**

Thursday, May 19, 2011 1:03:46 PM

Page 1

Item ID: D6009-129

Accept

Revision ID:

Item Name: Crosstube Material

Start Date: 5/19/2011 Start Qty: 40.00

Required Date: 7/12/2012 Req'd Qty: 40.00

Reference:

Approvals: Process Plan: CZ Date: 11/05/19 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D6009

Rev A

100

0.00



PURCHASING

Purchasing

Memo

0.00

Issue P/O: 14138

a) Order as per Dwg D6009

b) Material: 3.500 x 0.625 wall 7075-T6/T6511 (WW-T-700/7 or □QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube

c) Minimum ultimate tensile strength = 77 ksi

d) Minimum tensile yield strength = 66 ksi

e) Tolerance are per ASTM B210 (see details on Dwg D6009)

f) Material certification required

CZ 11/05/19 40

110

0.00



Receive &amp; Inspect for Damage &amp; Mat'l Certs

Packaging

Memo

0.00

Ensure material certification is attached

Packaging

C 11/2/12 (43)

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Work Order ID 69801

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Item ID: D6009-129

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Material

Start Date: 5/19/2011 Start Qty: 40.00



✓ Cust Item ID:

Required Date: 7/12/2012 Req'd Qty: 40.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

120

QC6- Inspect dimensions to drawing

0.00

8/26/08

643

QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6009.

See Dim sheet last page  
8/26/08

140

Identify as per dwg & Stock Location: LG

0.00

Dr 12/02/09

Packaging

Memo

0.00

Packaging

150

QC21- Final Inspection - Work Order Release

0.00

12/2/13

QC

Memo

0.00

Quality Control

00029

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Thursday, May 19, 2011 1:03:43 PM

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Work Order ID: 69801

Parent Item: D6009-129

Parent Item Name: Crosstube Material



Start Date: 5/19/2011

Required Date: 7/12/2012

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev:A ☐ 01.08.17 ☐ New Issue ☐ SM  
alodine DD 10.01.09 verified by:JLM

IPP Rev:B remove

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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D6009-129P

Purchased

No

110

Each

0.0000

1

40



Crosstube Material



6/14/11 (48)

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

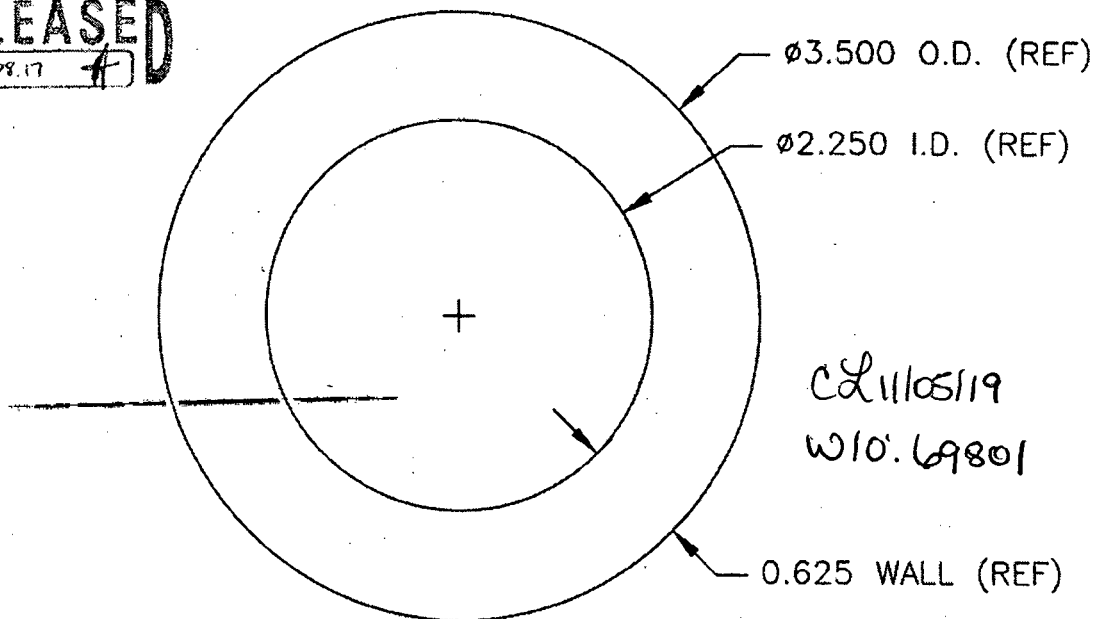
**NOTE:** Date & initial all entries



DESIGN #	DRAWN BY RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D6009	REV. A SHEET 1 OF 1
DATE 01.08.16		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	01.08.16	NEW ISSUE	

## SPECIFICATION CONTROL DRAWING

RELEASED  
01.08.17



### NOTES

- 1) D6009-XXX CROSSTUBE  
LENGTH

WHERE XXX IS LENGTH IN INCHES  
EG. 129" LONG TUBE: D6009-129

- 2) MATERIAL: 3.500 OD x 0.625 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.  
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi  
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:  
O.D.:  $\pm 0.008$  MEAN ( $\pm 0.016$  INCLUDING OVALITY)  
WALL:  $\pm 0.020$  MEAN ( $\pm 0.063$  INCLUDING ECCENTRICITY)  
LENGTH: XXX  $+0.188/-0.000$   
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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Aluma ref. no.	42438/8
Customer PO.	PO. 14138
Date:	01.30.12

Dart Aerospace PO. 14138  
D6009 - 129  
Made in Germany Dest.: Hawkesbury ONT, Canada

free from live plant pests

[illegible]



# Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

**Kunde:** Dart Aerospace Ltd.  
**Client:** 1270 Aberdeen Street  
 K6A1K7 Hawkesbury, ON Canada

**Zeugnisnummer:** 100/12

Cert No.: / No. du certificat:

**Bestellnummer:** PO14138

Order No. / No. de commande

**Auftrag:** 42438/8

Our Reference/Notre Reference:

**Produkt:** Rohre nahtlos gepresst  
**Product / Produit:** Tubes seamless extruded

**Spezifikation:** AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6009

Specification:

**Werkstoff:** 7075

Alloy/Alliage:

**Zustand:** T 6511

Temper/Etat

**Abmessung:** 3,500 INCH x 2,250 INCH x 0,625 INCH x 129,000 INCH  
**Size / Dimension:** D6009-129 3.500 X 0.625 X 129

**Kennzeichnung:** Cert No. 100/12 - ALUnna - 7075 - T6511 - Cast No. 84019 - AMS - QQ - A - 200/11 - 3.500" OD x 0.625" Wall -  
**Marking/Marquage:** Heat Lot No. 1301311 - ALUnna Order Conf No. 42438/8-1 - PO. 14138  
 Stück kg Country of Manufacture: Germany

## Lieferung

Delivered Material / Matériel délivré:

43

1446,00

Products are in accordance with applicable RoHS

## 1. Chemische Analyse

## Chemical Analysis / analyse chimique

Elemente ohne Grenzwerte:  
 einzeln max. 0,05 %, insgesamt 0,15 %

Charge/ Cast No.	min.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
	max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
84019		0,08	0,17	1,49	0,04	2,38	0,19	5,74	0,04	0,01	0,03			0,0001

Hydrogen content: 0,14

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

## 2. Mechanische Eigenschaften

## Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
min.	77,0	66,0				
max.						
1	83,375	75,980	10,0			1301311
2	71,920	79,895	10,0			
3	83,665	75,835	10,0			
4	87,000	80,620	11,0			

RMS: outside 25 - max. 21,8 µ"

**Ergebnis der Prüfungen:** Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

**Test results:** We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

**Resultats:** Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

31.01.2012 / merg



Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2003

valid until 2013-11-10

Cert.- Req. No.: 001959 QM; 001959 ASH

ALUnna

# EXTRUSION INSPECTION SHEET

## ULTRA SONIC MEASUREMENTS

TUBE #	TOTAL LENGTH	DIA two readings	INSIDE DIA	wall thickness measured w/vern	Straghtness at 12"	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4
1	129.00"	3.495"/3.492"	2.249"	0.612"/0.625"	0.019"	N/A	middle 64.5"	0.631"	0.631"	0.624"	0.624"
2	129.00"	3.500"/3.495"	2.249"	0.612"/0.641"	0.010"	N/A	middle 64.5"	0.630"	0.621"	0.625"	0.632"
3	129.00"	3.490"/3.498"	2.249"	0.615"/0.635"	0.005"	N/A	middle 64.5"	0.633"	0.638"	0.624"	0.618"
4	129.00"	3.491"/3.496"	2.248"	0.623"/0.632"	N/A	N/A	middle 64.5"	0.638"	0.630"	0.616"	0.625"
5	129.00"	3.498"/3.504"	2.250"	0.615"/0.621"	N/A	N/A	middle 64.5"	0.631"	0.624"	0.624"	0.630"
6	129.00"	3.493"/3.494"	2.249"	0.628"/0.612"	N/A	N/A	middle 64.5"	0.621"	0.623"	0.630"	0.623"
7	129.00"	3.491"/3.493"	2.250"	0.616"/0.630"	N/A	N/A	middle 64.5"	0.625"	0.629"	0.627"	0.627"
8	129.00"	3.495"/3.495"	2.249"	0.625"/0.615"	N/A	N/A	middle 64.5"	0.624"	0.623"	0.627"	0.627"
9	129.00"	3.499"/3.498"	2.250"	0.633"/0.613"	0.008"	N/A	middle 64.5"	0.631"	0.641"	0.621"	0.620"
10	129.00"	3.495"/3.501"	2.251"	0.624"/0.618"	N/A	N/A	middle 64.5"	0.619"	0.626"	0.636"	0.637"
11	129.00"	3.497"/3.500"	2.250"	0.625"/0.625"	N/A	N/A	middle 64.5"	0.621"	0.624"	0.632"	0.640"
12	129.00"	3.494"/3.498"	2.252"	0.615"/0.631"	N/A	N/A	middle 64.5"	0.625"	0.629"	0.629"	0.629"
13	129.00"	3.493"/3.495"	2.251"	0.621"/0.615"	N/A	N/A	middle 64.5"	0.631"	0.626"	0.623"	0.628"
14	129.00"	3.491"/3.494"	2.250"	0.620"/0.618"	N/A	N/A	middle 64.5"	0.627"	0.621"	0.626"	0.642"
15	129.00"	3.493"/3.501"	2.246"	0.625"/0.628"	N/A	N/A	middle 64.5"	0.627"	0.630"	0.631"	06.26"
PART # D6009-129		P/O# 14138		BATCH # 869801		Notes:					

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